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EXAMINER	
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ART UNIT	PAPER NUMBER
2154	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/849,662	PADMANABHAN ET AL.	
	Examiner	Art Unit	
	Ashok B. Patel	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 March 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-41 are subject to examination.

Response to Arguments

2. Applicant's arguments filed 03/10/2006 have been fully considered but they are not persuasive for the following reasons:

Applicant's argument:

"However, contrary to assertions in the Office Action, Anderson et al. fails to teach transmission time delay measurements from the host to a computer system to correct location estimates. The section of the cited art reference in the Office Action points to a single sentence where Anderson et al. makes a casual reference to latency calculations. Anderson et al. provides no further details as to what these latency calculations are and how they are used anywhere in the specification or drawings. Specifically, there is no mention or suggestion of a transmission time delay measurement from the host to a computer system. Therefore, it is clear that Anderson et al. fails to teach or suggest determining a delay time associated with a transmission from the computer system to receipt of the transmission at the Internet host along the network path; and selectively correcting the location estimate according to the delay time associated with the network path."

Examiner's response:

Anderson's teachings at col. 17, line 42-53 of "Latency calculations" has to be construed as being the missing descriptive matter which is necessarily

present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. (MPEP § 2112 (IV)).

Also, it would be so recognized by persons of ordinary skill when Anderson clearly elucidates at col. 16, line 21-35, "As illustrated in FIG. 2, the analysis module 28 includes a collection of blocking algorithms 63, a unified mapping process 61, and a consolidated domains algorithm 65. FIGS. 9A and 9B show a flowchart illustrating a method 70, **according to an exemplary embodiment of the present invention, of tiered estimation of the geolocation associated with a network address.** Specifically the tiered estimation of a geolocation employs a number of exact processes and, if the exact processes fail, a number of inexact processes. **In an alternative embodiment of the present invention, no distinction is made between exact and inexact processes (as shown in FIG. 11), and all processes are regarded as being located on a common tier.** The method 70 is performed by the analysis module 28, and employs each of the algorithms 61, 63 and 65."

Please refer to Link et al. (US 6, 012, 096) and Vanlint (US 6, 922, 417) for latency calculations.

Applicant's argument: Claim 27

"Contrary to assertions in the Office Action, Anderson et al. also fails to teach or suggest this aspect. Applicants' claimed invention can compute a dispersion metric of the statistical variability of locations represented by the cluster of addresses to represent the accuracy of the Location estimate of the host."

Examiner's response:

Claim 27 recites "computing a dispersion metric representative of the accuracy of the location estimate of the location of the Internet host."

Anderson defines its "geographic location" at col. 7, line 64-col. 8, line 9 as being "For the purposes of the present specification, the term "geographic location" shall be taken to refer to any geographic location or area that is identifiable utilizing any descriptor, metric or characteristic. The term "geographic location" shall accordingly be taken to include a continent, a country, a state, a province, a county, a city, a town, village, an address, a Designated Marketing Area (DMA), a Metropolitan Statistical Area (MSA), a Primary Metropolitan Statistical Area (PMSA), location (latitude and longitude), zip or postal code areas, and congressional districts. Furthermore, the term "location determinant" shall be taken to include any indication or identification of a geographic location."

Anderson also teaches at col. 23, line 47-52, "The unified mapping process 61 further constructs **a list of possible physical locations for a given network address,** and from this list, through fuzzy logic and **statistical methodologies,** returns a location with a set of associated probabilities that provide an indication regarding the accuracy of that location."

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless-

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Anderson et. al.(US 6, 684, 250)

Referring to claim 1,

Anderson teaches a computer implemented method of determining the location of as Internet host using a computer system„ comprising the following computer executable acts (col.8, line 14-31):

obtaining route information relating to a network path between a host IP address associated with the Internet host and the computer system, wherein the network path comprises the computer system, the Internet host, and at least one intermediate network node, and wherein the route information comprises a plurality of router labels associated with the host IP address and the at least one intermediate network node; extracting a location code from the route information corresponding to a router label associated with one of the Internet host and an intermediate network node proximate the Internet host (col.8, line 14-31);

consulting a data store comprising at least one data set having location codes and corresponding location information (Fig. 1A, element 30);

obtaining location information from the data store corresponding to the location code associated with the one of the Internet host and the intermediate network node proximate the Internet host (col.8, line 14-31);

providing a location estimate of the location of the Internet host according to the location information from the data store corresponding to the location code (col. 21, line 21-28);

determining a delay time associated with a transmission .from the computer system to receipt of the transmission at the Internet host along the network path; and (col. 17, line 42-53)

selectively correcting the location estimate according to the delay time associated with the network path (col. 21, line 53-56).

Referring to claim 2,

Anderson teaches the method of claim 1, further comprising extracting the location code by examining the router labels in route order along the path from the host to the computer system until a location code is found that is usable to obtain location information from the data store (col. 21, line 21-28).

Referring to claim 3,

Anderson teaches the method of claim 2, further comprising: determining a confidence metric representative of the accuracy of the location estimate; and selectively providing the location estimate of the location of the Internet host if the confidence metric exceeds a threshold. (col. 17, line 42-53)

Referring to claim 4,

Anderson teaches the method of claim 3, further comprising: determining a confidence metric representative of the accuracy of the location estimate based upon the delay time between the Internet host and the network node associated with the location estimate. (col. 21, line 53-56)

Referring to claim 5,

Anderson teaches the method of claim 1, further comprising: obtaining route information relating to each network path between the host IP address and each of a plurality of computer systems, wherein the route information comprises a plurality of router labels associated with the host IP address, and each of the plurality of computer systems, and at least one intermediate network node in each network path; extracting a location code for each network path from the route information corresponding to a router label associated with one of the Internet host and the at least one intermediate network node in each network path; obtaining location information from the data store corresponding to each location code; providing a plurality of location estimates of the location of the Internet host according to the location information from the data store corresponding to each location code; and correlating at least two of the location estimates to provide an improved location estimate of the location of the Internet host. (col. 21, line 53-56)

Referring to claim 6,

Anderson teaches the method of claim 1, wherein the location code comprises one of a city code, and airport code, and a country code, and wherein obtaining the route information comprises using a traceroute tool. (col. 29, line 44-65)

Referring to claim 7,

Claim 7 is a claim to a software tool for carrying out the method steps of claim 1. Therefore claim 7 is rejected for the reasons set forth for claim 1.

Referring to claim 8,

Claim 8 is a claim to a computer-readable medium having computer executable instructions for carrying out the method steps of claim 1. Therefore claim 8 is rejected for the reasons set forth for claim 1.

Referring to claim 9,

Claim 8 is a claim to a system for carrying out the method steps of claim 1. Therefore claim 8 is rejected for the reasons set forth for claim 1.

Referring to claim 10,

Claim 10 is a claim for geographical location estimate data associated with an Internet host, the estimate data resulting from a process that includes the method of claim 1. Therefore claim 10 is rejected for the reasons set forth for claim 1.

Referring to claim 11,

Claim 11 is a claim to method that includes the method steps of claim 1 (using multiple computer systems). Therefore claim 11 is rejected for the reasons set forth for claim 1.

Referring to claim 12,

Anderson teaches a computer implemented method of determining the location of an Internet host using a first computer system, comprising the following computer executable acts: measuring a first delay time relating to a transmission from the first computer system to receipt of the transmission at the Internet host

alone a first network path between a host IP address associated with the Internet host and the first computer system; measuring a second delay time relating to a transmission from a second computer system to receipt of the transmission at the Internet host along a second network path between the host IP address and the second computer system; measuring a third delay time relating to a transmission from a third commuter system to receipt of the transmission at the Internet host along a third network path between the host IP address and the third computer system. at least one of the first. second, and third network -paths containing at least one intermediate node; (col. 17, line 42-60)

correlating the first, second, and third delay times; and providing a location estimate of the location of the Internet host according to the correlation of the first, second, and third delay times. (col. 21, line 53-56)

Referring to claim 13,

Anderson teaches the method of claim 12, wherein correlating the first, second; and third delay times comprises triangulating the first, second, and third delay measurements. . (col. 21, line 53-56, col. 53, line 17 – col. 54, line 5)

Referring to claims 14 and 15,

Anderson teaches the method of claim 12, wherein correlating the first, second, and third delay times comprises: consulting a data store comprising N sets of first, second, and third delay measurements between the first, second, and third computer systems, respectively, and N known hosts, as well as location information associated with the N known hosts, wherein N is an integer-, performing a comparison of the first, second, and third delay times with the N

sets of first, second, and third delay measurements in the data store; determining a nearest set of first, second, and third delay measurements according to the comparison; and providing a location estimate of the Internet host and the method of claim 14, wherein performing the comparison of the first, second, acid third delay times with the N sets of first, second, and third delay measurements in the data store comprises determining N Euclidian distances corresponding to the Euclidian distances between the N sets of first, second, anal third delay measurements in the data store and the first, second, and third delay times, and wherein providing a location estimate of the Internet host according to the nearest set of fist, second, and third delay measurements comprises selecting location information associated with the set of first, second, and third delay measurements in the data store associated with the smallest Euclidian distance as the location estimate. (col. 40, line 37-65, col. 42, line 46-54).

Referring to claims 16,

Anderson teaches the method of claim 12, wherein correlating the fast, second, and third delay times comprises: computing a first probability density function establishing a relationship between a first network delay associated with the first computer system and a first distance from the first computer system; determining a first distance estimate representative of the distance between the first computer system and the location of the Internet host using the first delay time and the first probability density function; computing a second probability density function establishing a relationship between a second network delay associated with the second computer system and a second distance from the second computer

system; determining a second distance estimate representative of the distance between the second computer system and the location of the Internet host using the second delay time and the second probability density function; computing a third probability density function establishing a relationship between a third network delay associated with the third computer system and a third distance from, the third computer system; and determining a third distance estimate representative of the distance between the third computer system and the location of the Internet host using the third delay time and the third probability density function; and wherein providing the location estimate comprises triangulating the first, second, and third distance estimates. (col. 21, 53-56, col. 16, line 21-35, col. 14, line 25-35, col. 53, line 17-col. 54, line 5)

Referring to claims 17,

Anderson teaches the method of claim 16, wherein determining the first, second, and third distance estimates further comprises computing an error function over a location space, and determining coordinates within the location space where the error function is minimized. (col. 15, line 52-54).

Referring to claims 18,

Anderson teaches the method of claim 17, wherein determining coordinates within the location space where the error function is minimized comprises minimizing the error function across a list of known city locations, and wherein providing the location estimate comprises providing the known city location corresponding with the minimum value of the error function. (col. 16, line 5-19)

Referring to claims 19, 20, 21, and 22,

Anderson teaches the method of claim 18, wherein computing the error function comprises using a weighted least mean squares algorithm to optimize the location estimate., and the method of claim 18, wherein computing the error function comprises using a probability density estimation to optimize the location estimate, and the method of claim 18, wherein computing the error function comprises using a weighted least mean squares algorithm to prune a solution space, and using a probability density estimation to optimize the location estimate from the pruned solution space, and the method of claim 18, wherein computing the error function comprises using a probability density estimation to prune a solution space, and using a weighted least mean squares algorithm to optimize the location estimate from the pruned solution space. (col. 27, line 52- col. 28, line 6, col. 2, line 42- col. 3, line 9)

Referring to claim 23,

Claim 23 is a claim to a software tool for carrying out the method steps of claim 12. Therefore claim 23 is rejected for the reasons set forth for claim 12.

Referring to claim 24,

Claim 24 is a claim to a computer-readable medium having computer executable instructions for carrying out the method steps of claim 12. Therefore claim 24 is rejected for the reasons set forth for claim 12.

Referring to claim 25,

Claim 25 is a claim to a system for carrying out the method steps of claim 12. Therefore claim 25 is rejected for the reasons set forth for claim 12.

Referring to claim 26,

Claim 26 is a claim for geographical location estimate data associated with an Internet host, the estimate data resulting from a process that includes the method of claim 12. Therefore claim 26 is rejected for the reasons set forth for claim 12.

Referring to claim 27,

Anderson teaches a method of determining the location of an Internet host using a first computer system, comprising the following computes executable acts obtaining partial IP-to-location mapping information from a data source; obtaining network routing information; (col. 27, line 6-20)

clustering together IP addresses corresponding to hosts in the same geographic location according to network routing information to obtain cluster information (col. 18, line 32-50);

correlating the partial IP-to-location information with the cluster information providing a location estimate of the location of the Internet host according to the correlation of the partial IP-to-location information and the cluster information; and computing a dispersion metric representative of the accuracy of the location estimate of the location of the Internet host. (col. 18, line 51-65)

Referring to claims 28 and 29,

Anderson teaches the method of claim 27, wherein obtaining network routing information comprises using a routing protocol, and the method of claim 28, wherein the routing protocol is one of BGP,R1P, OSPF, IGRP, and EGP. (col. 22, line 51-67)

Referring to claim 30,

Anderson teaches the method of claim 27, wherein clustering together IP addresses corresponding to hosts in the same geographic location according to network routing information to obtain cluster information comprises associating an address prefix used by a routing protocol with a geographical location. (col. 23, line 4-37)

Referring to claim 31, 32, 33 and 34,

Anderson teaches the method of claim 30, further comprising: sub-dividing the geographical location associated with the address prefix into at least two clusters according to a geographical spread associated with the geographical location., and the method of claim 27, further comprising sub-dividing the cluster information according to a geographical spread associated with the geographical location, and the method of claim 27, further comprising selectively providing the location estimate if the dispersion metric is less than a threshold value, and the method of claim 33, further comprising a threshold value that is dependent on the size of the cluster.

Referring to claim 35,

Anderson teaches the method of claim 27, further comprising: obtaining route information relating to a first network path between a host IP address associated with the Internet host and the first computer system, wherein the first network path comprises the first computer system, the Internet host, and at least one intermediate network mode, and wherein the route information comprises a plurality of router labels associated with the host IP address and the at least one intermediate network node;

extracting a first location code from the route information corresponding to a router label associated with one of the internet host and an intermediate network node proximate the Internet host; (col.8, line 14-31)

consulting a data store comprising at least one data set having location codes and corresponding location information; (Fig. 1A, element 30)

obtaining first location information from the data store corresponding to the first location code associated with the one of the Internet host and the intermediate network node proximate the Internet host; (col.8, line 14-31) and

providing a first location estimate of the location of the Internet host according to the first location information from the data store corresponding to the first location code.(col. 21, line 21-28)

Referring to claim 36,

Anderson teaches the method of claim 35, further comprising: measuring a first delay tune relating to a transmission from the first computer system to receipt of the transmission at the Internet host along a first network path between a host IP address associated with the Internet host and the first computer system; measuring a second delay time relating to a transmission from a second computer system to receipt of the transmission at the Internet host along a second network path between the host IP address and the second computer system; measuring a third delay time relating to a transmission from a third computer system to receipt of the transmission at the Internet host along a third network path between the host IP address and the third computer system at least

one of the first, second, and third network paths containing at least one intermediate node; (col.17, line 42-60)

correlating the first, second, and third delay times; and providing a location estimate of the location of the Internet host according to the correlation of the first, second, and third delay times. (col. 21, line 53-56)

Referring to claim 37,

Anderson teaches the method of claim 27, further comprising: measuring a first delay time relating to a transmission from the first computer system to receipt of the transmission at the Internet host along a first network path between a host IP address associated with the Internet host and the first computer system; measuring a second delay time relating to a transmission from a second computer system to receipt of the transmission at the Internet host along a second network path between the host IP address and the second computer system; measuring a third delay time relating to a transmission from a third computer system to receipt of the transmission at the Internet host alone a third network path between the host IP address and the third computer system, at least one of the first, second, and third network paths containing at least one intermediate node; (col. 17, line 42-60)

correlating the first, second, and third delay times; and providing a location estimate of the location of the Internet host according to the correlation of the first, second, and third delay times. (col. 21, line 53-56)

Referring to claim 38,

Claim 38 is a claim to a software tool for carrying out the method steps of claim 27. Therefore claim 38 is rejected for the reasons set forth for claims 27, 33 and 34.

Referring to claim 39,

Claim 39 is a claim to a computer-readable medium having computer executable instructions for carrying out the method steps of claim 27. Therefore claim 39 is rejected for the reasons set forth for claims 27, 33 and 34.

Referring to claim 40,

Claim 40 is a claim to a system for carrying out the method steps of claim 27. Therefore claim 40 is rejected for the reasons set forth for claims 27, 33 and 34.

Referring to claim 41,

Claim 41 is a claim for geographical location estimate data associated with an Internet host, the estimate data resulting from a process that includes the method of claim 27. Therefore claim 41 is rejected for the reasons set forth for claims 27, 33 and 34.

Conclusion

Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially

teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok B. Patel whose telephone number is (571) 272-3972. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public

PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*ABP**

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